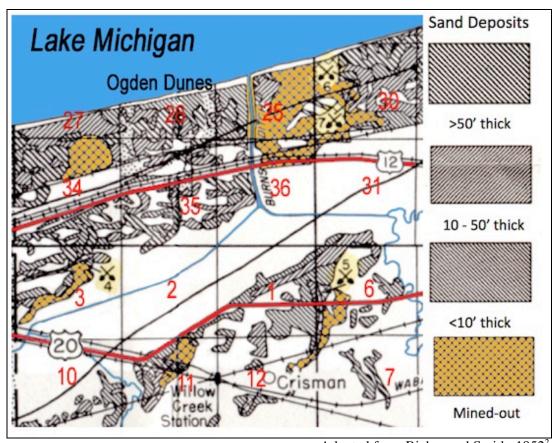
## Chapter 6

# Sand Mining in Porter County, Portage Township

Much sand is shipped from this [Portage] township to Chicago, and it may be that in time this will be a fruitful source of wealth, for the supply is almost limitless. That found south of the [Little] Calumet [River] is thought to be of the best quality.

Garard, 1882<sup>1</sup>



Adapted from Bieber and Smith, 1952<sup>2</sup>

Sand mining in Portage Township has occurred in two diagonal bands both paralleling the shoreline of Lake Michigan: The northern band close to the lake is composed of Tolleston / Recent sand deposits plus some Calumet sand dunes east of Burns Waterway, and a southern band south of the Little Calumet River composed of Calumet and Glenwood deposits. No sand mining, except for the ditching in the 1920s, occurred along the river as its bed and floodplain are composed primarily of clay soils. In 1950 when this map was prepared, there were five active sand mining operations still occurring in the Township. They were:

- -- Inland south: Inland Steel Company (Section 27, but not indicated on the map)
- 4. Stagecoach Road: J. N. Bos Sand Company
- 5. Crisman: Crisman Sand Company
- 6. Dune Park North: Consumers [Sand] Company

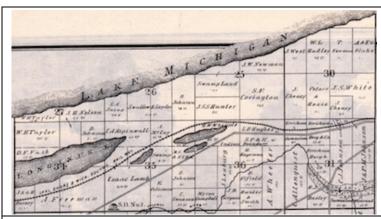
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<sup>&</sup>lt;sup>1</sup> Garard, 1882, p. 214.

<sup>&</sup>lt;sup>2</sup> Upper left: Township 37 North, Range 7 West; Upper right: Township 37 North, Range 6 West; Lower left Township 36 North, Range 7 West; Lower right: Township 36 North, Range 6 West.

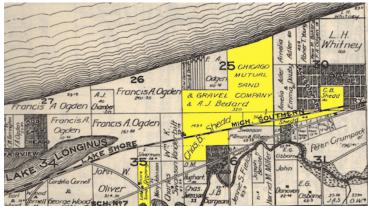
## 7. Dune Park South: Manley Sand Company

# **Portage Township Northern Tier Land Ownership:**

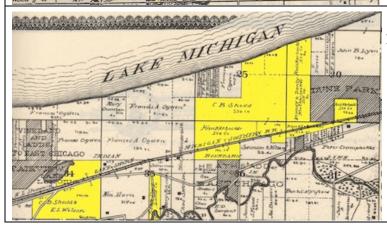


**1876:** No evidence of sand mining.

But in the next twenty years there would be much land speculation with Francis Ogden purchasing much of the land on the west side of the township and C. B. Shedd much of the land on the east side.

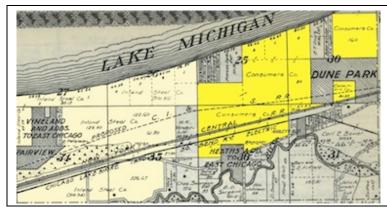


1895: Ogden owned much of Sections 26, 27, and 35 while the Chicago Mutual Sand and Gravel Company owned most of Section 25 where Burns Ditch (Waterway) and Midwest Steel would eventually be located. Shedd owned acreage south and east of it—and probably all of Dune Park. The Lake Shore Sand Company owned 36 acres south of today's Route 12 and west of today's Stagecoach Road.



1906: Knickerbocker had purchased 80 acres west of Dune Park. Chicago Mutual's land is now owned by C. B. Shedd as are about 200 acres to the west in Section 34 and another 10 acres in Section 36.

It is likely that Francis Ogden arranged for Shedd to do sand mining on his adjacent property.



1921: Inland Steel owned all of Ogden's and Shedd's property on the western half of the township while the Consumers Company (a Knickerbocker subsidiary) owned all of the former Knickerbocker and Shedd lands to the east.

West Beach (Sections 27 and 34)

The West Beach area of Indiana Dunes National Lakeshore is the site of the largest sandmining operations that have occurred on what is now National Lakeshore property. Not mined was the Edgewater community, in the northwestern portion of Section 34, which was, in the late 1800s, subdivided into two proposed residential communities, Vineland and Fairview (See map on the previous page).

In 1906, 1,200 acres of this corner of Porter County were owned by Francis A. Ogden, a Wisconsin-based land speculator. 240 acres were owned by Knickerbocker's C. B. Shedd and E.L.

Wilson, for whom the Wilson Station (and the state park shelter) are named. Knickerbocker probably mined sand on both properties using the Lake Shore and Michigan Southern Railroad for transportation of the sand to Chicago. Both properties were sold to Inland Steel Company in 1920.

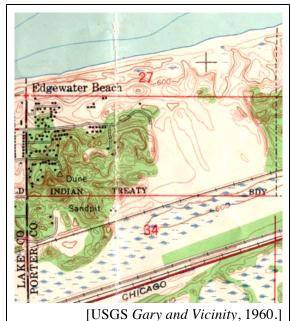
Mining became much easier about 1922 when the Indiana Harbor Belt Railroad (IHB) built its line right across Inland's property, but Inland Steel documents claim that most of the mining there was done before it made its purchase.<sup>3</sup> That rail line has since been abandoned. The route is today used for trails.

The land that was mined can be recognized by the lack of contour lines on the 1940 map. In 2005, researchers Wilcox, Chun, and Choi used tree rings on the oldest trees in the cleared southern portion of the



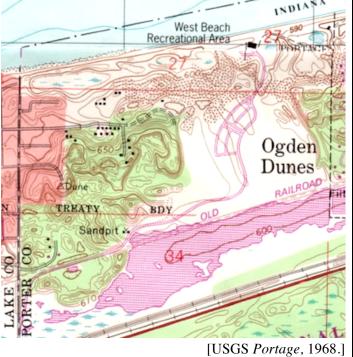
<sup>&</sup>lt;sup>3</sup> Gentz, R. S. Letter to Inland Steel Company employees. March 22, 1966.

area to surmise that mining ceased there about 1930.<sup>4</sup> Inland Steel, however, continued to mine sand in the northern and central parts of the property into the 1960s.<sup>5</sup> Both the 1960 and '68 maps show a mining symbol south of the Indian Treaty line on the Inland property. Some of the sand was taken by railroad cars to the beach where it was loaded on barges and apparently taken to Chicago. Edgewater resident who watched this operation said that she had been told that the sand was going to be used as lake fill around Grant Park and what is called today Chicago's museum campus.<sup>6</sup>



The area called Fairview (see maps on the second page of this chapter) was subdivided into 600 tiny lots in 1891<sup>7</sup>, but left undeveloped until the 1920s. Vineland, just north of Fairview, was subdivided before 1895. By the 1950s, both areas had become a beach-oriented residential area called Edgewater (pink on the map to the right). Other than excavations for streets and houses, it was not sand mined and remained largely in a natural condition. The West Beach maintenance building (east of County Line Road) is in what used to be called Fairview.

The National Park Service purchased the acreage in Sections 27 and 34 in 1967-68. Today that land, north of U.S. Route 12 and the rail lines, is the site of West Beach. An access road, parking lot, and bathhouse have all been built on previ-



Ogden Dunes was to the right of the dashed line. The purple text and features were added in 1983.

ously sand mined lands. Long Lake (in purple) is being restored, and three trails, Long Lake Trail, the Dune Succession Trail, and the West Beach Trail, offer visitors varied hiking experiences.

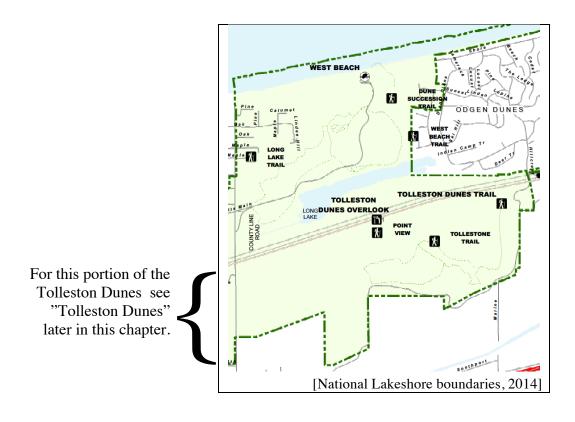
West Beach and surrounding areas

<sup>&</sup>lt;sup>4</sup> Wilcox, Chun, and Choi, 2005, p. 18.

<sup>&</sup>lt;sup>5</sup> As observed by nearby Edgewater residents. [Laue, Steel Shavings, 1998]

<sup>&</sup>lt;sup>6</sup> Kadlec in Steel Shavings, 1998.

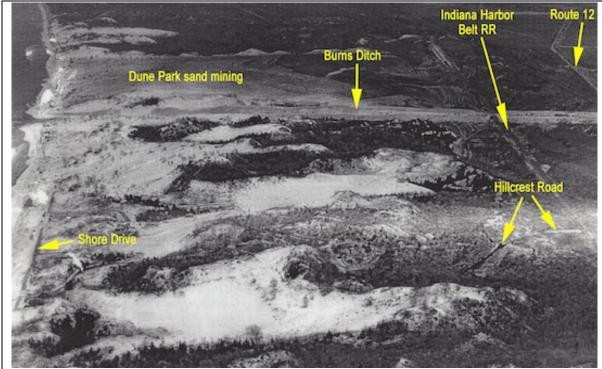
<sup>&</sup>lt;sup>7</sup> Lewis Publishing Company, p. 168-69.



# Ogden Dunes (Section 26 and N½ Section 35)

While back around the turn of the last century Francis Ogden had the land west of what is now Ogden Dunes sand mined, he apparently did not remove any sand in what later became Ogden Dunes.

The intent then of the developers of Ogden Dunes back in the 1920s was to use the dunes to create an alternative to noisy (and flat) cities. Thus rather than remove the dunes and then build a neighborhood, the dunes became the foundation for the neighborhood. But that doesn't mean that there was no mining. In order to make roadways and foundations for houses, sand had to be moved. Much sand was also moved when the Indiana Harbor Belt Railroad was built right through the middle of the area. More mining would have taken place if the original plans for a golf course, hotel, and clubhouse had come to fruition, but those plans were never developed.



Ogden Dunes, May, 1930. Note the light-colored blowouts. North is to the left.

[National Park Service]



Ogden Dunes Ski Jump, ca. 1928.

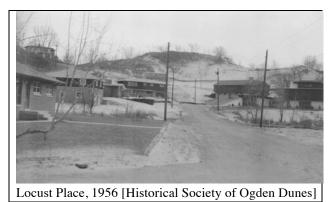
Ski Hill back in 1927 was the country's highest ski jump. The slide itself was 590 feet long and thirty stories high. Several competitions with international participants were held there, but the Ogden Dunes Ski Club that had it built during the Roaring '20's, couldn't afford to keep it through the Depression. The last competition was in 1932. The apparatus was dismantled in 1937. The land was then rezoned for residential use.<sup>8</sup>

Ski Hill is not visible in the above photo.

<sup>&</sup>lt;sup>8</sup> In 1997 the Indiana Historical Bureau placed a Ski Hill historical marker on Kratz Field.

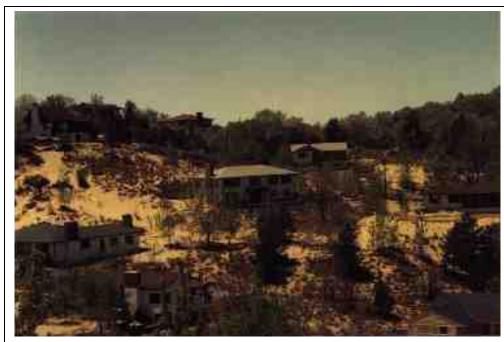
Ogden Dunes' two tallest dunes are gone. Mount Everest at 745 feet, was once the highest dune in Portage Township. It was leveled and the sand used to fill in part of Long Lake down by the water filtration plant. Summit Road is today the only physical reminder of that dune. In the same way, Ski Hill Road, just south of Summit, is the only physical reminder Ogden Dunes' early claim to fame.

Other smaller dunes have also been removed to make way for roads and houses. For instance, the dune at the south end of Locust Place, was removed to make room for a cul-de-sac.





As can be seen on the aerial photograph on the previous page, the Ogden Dunes area used to have a lot of bare sand. The photo to the right shows that as late as 1956 some bare sand could still be seen, even in the residential areas of But bare town. sand is open to the and thus wind unpopular rather with many homeowners. Today, little, if any bare



Looking west from Aspen Road in Spring, 1956.

http://members.tripod.com/Ogden Dunes/pix1.html

sand is visible in town—except, of course, at the beach.

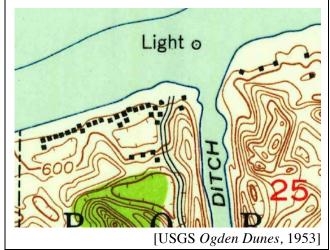
<sup>&</sup>lt;sup>9</sup> The Historical Society of Ogden Dunes.

# Portage Lakefront and Riverwalk (East ½ Sections 26 and 35 / West ½ Sections 25, and 36)

Much of Section 36 north of the New York Central (formerly Michigan Southern) tracks was already flat when Burns Ditch was excavated in 1926 having been sand mined earlier by the Con-

sumers Company. National Steel Company purchased much of this site east of the new town of Ogden Dunes as early as 1929.<sup>10</sup>

As can be seen on the maps on the second page of this chapter, much of the lakefront west of Burns Ditch was subdivided before the turn of the last century and had cottages facing the lake. By the early 1950s, there were 18-20 cottages in the area by then informally called both the "East End" and "Rubert's Subdivision." (The Rupert family had leased some of the land and subleased to others.)



#### **Boat Clubs on Burns Ditch**

The Gary Boat Club, with many US Steel Company executives as members, was founded in 1936. It constructed piers along Burns Ditch and an impressive clubhouse on the beach. Some members had cottages built on the lakefront between Burns Ditch and Ogden Dunes.<sup>11</sup> Also along the Ditch were facilities of the Marquette Boat Club and the Miller chapter of the Izaak Walton League. In late summer of 1959 the *Chicago Daily Tribune* noted that about 700 boats were docked along Burns Ditch.<sup>12</sup>



Mouth of Burns Ditch, circa 1955.

[Indiana Dunes National Lakeshore collection]

Note the large dune still on the lakefront on the east side (left) of the Ditch and the many boats heading into or out of Lake Michigan. The sand dune on the left was leveled in 1959.<sup>13</sup> The large building on the beach, west (right) of the Ditch is the Gary Boat Club clubhouse. An access road, visible behind the

<sup>&</sup>lt;sup>10</sup> Indiana Dunes Administrative History, Part I, Ch. 2 http://www.nps.gov/parkhistory/online books/indu/adhi2.htm

<sup>11</sup> Shack: http://sdhistoricalsociety.net/oralhistory/interviews/APersonalHistoryofRJPeterson.htm.

<sup>&</sup>lt;sup>12</sup> Shepherd, 1959, p. 7.

<sup>&</sup>lt;sup>13</sup> Ibid.

clubhouse, was built to serve the lakefront residents and the Boat Club members. On the day this photo was taken, the parking lot was full.

The two sand ridges paralleling the ditch were likely built with sand excavated when the ditch was

dug in 1926. The 1953 map (above) and the 1940 map (right) show the several lakefront and dune-edge cottages there. Many more were there by 1953.

Sections 26 (left) and 25 (right)→

Sections 35 (left) and 36 (right)→

In 1959, National Steel Company, which owned the land had the cottages removed. After its mill was built east of Burns Ditch, the mill used a por-



Note the cottages along the lakefront [USGS *Porter*, 1940]



[Upper: USGS *Ogden Dunes*, 1991 Lower: *Portage*, 1992]

tion of this area as an open pit to store acids and other liquid residues. The steel company also had a waste-water treatment facility at the site. In order to use the land this way, the steel company had to remove sand and reshape some of the land to create the retention basins.

In 1986, Congress authorized this 57-acre tract to become part of the National Lakeshore. National Steel began cleaning the site, a job finished by the property's subsequent owner, United States Steel Company. The National Park Service purchased the site in 2004. The project was designed in partnership between the National Park Service and the City of Portage. The restored area, with its 125-vehicle parking lot, was opened to the public in 2008.<sup>14</sup>

Unfortunately the 2013 topographic map (not shown) does not show the changes made to the land when it was restored and became part of the National Lakeshore and became the Portage Lakefront and Riverwalk.

National Lakeshore boundaries, 2014

<sup>&</sup>lt;sup>14</sup> Indiana Dunes National Lakeshore. <a href="www.nps.gov/indu/planyourvisit/portage-lakefront-and-riverwalk.htm">www.nps.gov/indu/planyourvisit/portage-lakefront-and-riverwalk.htm</a>.



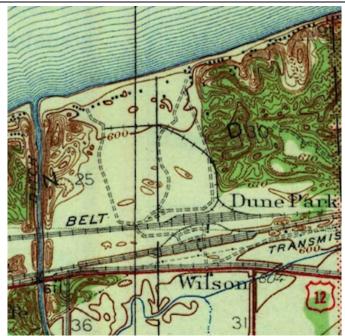
<u>Left</u>: The pavilion at the Portage Lakefront and Riverwalk [K. J. Schoon]

## Dune Park: Burns Ditch and Dune Park (Sections 25, 30, 31 and 36)

The most extensive sand mining operations in the Dunes area of northwest Indiana occurred in the industrial belt around where the Port of Indiana is today. This sand mining, however, began long before plans for today's port were created.

Because of its sand shipments, the Dune Park station on the Michigan Southern (New York Central) Railroad (shown on this map as Wilson and not to be confused with today's Dune Park station on the South Shore) was in 1889 the best paying freight station on the Michigan Southern in Indiana. The previous year more than three hundred cars of sand were shipped from the Dune Park station every twenty-four hours.<sup>15</sup>

The "town" of Dune Park, on the Portage/ Westchester township border, was neither a typical town nor a park. It was also not located where either the state or national parks are today. The *Chesterton Tribune* reported in 1898 that the "town" was composed of one boarding house, five steam shovels, and one "unpretentious" depot.<sup>16</sup> (That depot on the Michigan



Burns Ditch and Dune Park in 1940. Note all the houses along the beach. [USGS *Porter*, 1940]

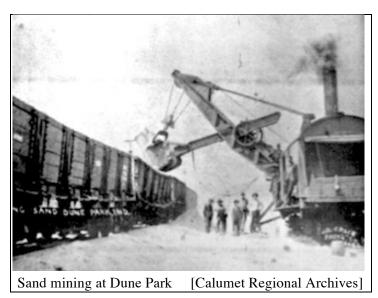
Southern line, however, handled more freight —sand—than any other Indiana depot west of Elkhart.) Between the depot and boarding house was a network of sidetracks, usually filled with railroad cars, which made the place look like a rail yard.

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<sup>&</sup>lt;sup>15</sup> Moore: pages 100-101

<sup>&</sup>lt;sup>16</sup> Chesterton Tribune, May 7, 1898. Reprinted Friday, September 3, 1976.

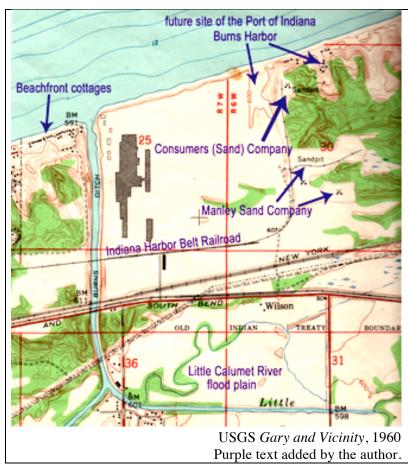
Three of the shovels ran in daylight and four at night. Laborers earned \$1.50 for a ten-hour shift. Five locomotives were used to transfer cars to the pits. The crew of each shovel consisted of seven men: an engineer, fireman, craner, and four common laborers who laid the tracks for the shovel and leveled the sand in the cars as they were being filled. Altogether there were about sixty men who worked for the sand company and another forty who worked for the railroad. The author of the Tribune article noted that a saloon would have had a thriving business if the company allowed such establishments.



Blowout Active sand mining areas Earlier mining area Burns Ditch Ogden Dunes
Forested dunes Former route of the Little Calumet River
Dune Park area, 1958 [Indiana Dunes National Lakeshore collection]

The 1960 map to the right shows three active sand mining operations in Section 30. Spurs from the Indiana Harbor Belt Railroad were then serving the operations. As can be seen by the lack of contour lines, extensive mining had already occurred in Section 25 on both sides of Burns Ditch, and the western and southern portions of Section 30.

Consumers Company's production in 1950 was slow—claimed to be only 5 to 6 rail cars a day. It picked up in the fall as buyers stocked up for winter. According to staff interviewed in the 1950s, much of the sand taken from the square mile between its 1950 pit and Burns Ditch was used as fill material elevating roads and railroads in the Chicago area.<sup>17</sup>



According to Russel Manley, who was interviewed by geologist C. L. Bieber in 1950, mining at the Manley pit area began in 1893. It stopped during the Depression and restarted in 1943. <sup>18</sup>

The Manley Sand Company also operated an oil-fired sand-drying operation at Dune Park, which not only removed moisture from the sand but burned any small pieces of wood that might have been mixed with the sand. The sand was then blown to remove the ash and loaded into sealed boxcars to be shipped to foundries.

The demand for oil-dried sand was greater during freezing weather when frozen chunks of sand could be very difficult to work with.<sup>19</sup>

Congress approved the Port of

Manley's slack line cableway, conveyor belt system, and part of the drying equipment at the company's sand pit at Dune Park.

[Bieber and Smith, 1952.]

<sup>&</sup>lt;sup>17</sup> Smith and Patton, 1952, p. 6.

<sup>&</sup>lt;sup>18</sup> Bieber field notes, 1950, p. 32.

<sup>&</sup>lt;sup>19</sup> Bieber and Smith, 1952, p. 28.

Indiana in 1966. Construction be-	

gan almost immediately. The first ore boat arrived in September.<sup>20</sup>

<sup>&</sup>lt;sup>20</sup> Gray, 1998, pp. 45-59.

## Burns Junction (Sections 35, 36, and 31—south of Rt. 12)

There has been much sand mining in the Burns Junction area since the mid-1980s. Some sand was taken for the new beds of Indiana Rt. 249 and U.S. Rt. 12. Much was removed to make basins for the marinas along Burns Waterway and the Little Calumet River. Excavation just for the Portage City Marina east of the water-way removed 700,000 cubic yards of sand.21

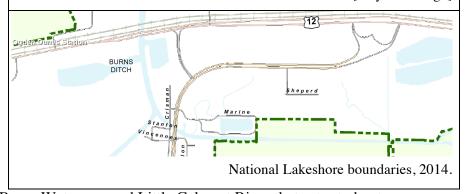
In order for the marinas to be created, the sand dunes located on both sides of the ditch just south of Rt. 12 were removed. The Por-tage Marina east of the waterway opened in 1996. After many years of efforts by the owner of Lefty's Coho Landing, the Marina Shores development west of the waterway opened in 2008. There are now eight



Burns Junction showing borrow pits at U.S. Rt.12 / Indiana 249 junction and dunes on both sides of Burns Ditch. [USGS *Portage*, 1992]



Burns Junction showing the marina basins on the Waterway and two shallow basins north of the Little Calumet River. [City of Portage]



marina facilities along the Burns Waterway and Little Calumet River that cater to boaters.



<u>Left top</u>: The Portage Public Marina as viewed from Indiana highway 249. [K. J. Schoon, 2011]

<u>Left bottom</u>: Marina Shores at Dune Harbor, constructed on the site of a former boat launch operation.

<sup>&</sup>lt;sup>21</sup> Bieker, 1992.



http://marinashoresindiana.com/

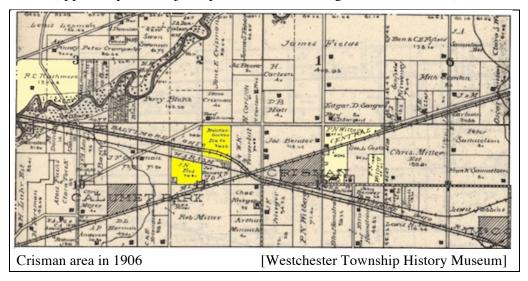
#### **Portage Township Southern Tier**

The southern tier of sand dunes in Portage Township was mined in much smaller segments than those up near the lakefront. The sand there was formed during Lake Michigan's older Glenwood and Calumet stages. The sand dunes here were not as high as those further north, and being older had been covered by black dirt. This area by the turn of the last century was primarily rural. A small community called Crisman had grown up around the Willow Creek railroad station where both the B & O and Wabash tracks crossed the old Michigan Central line.

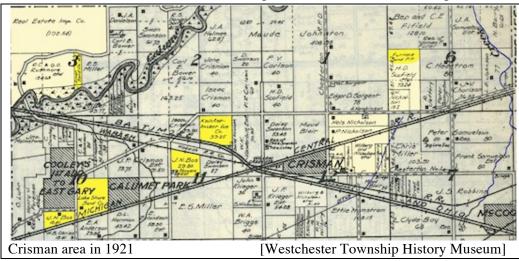
#### **Land Ownership:**

On an 1895 map, the only sand company to own property in the southern tier of sand ridges was E. A. Shedd, which also owned much land in the northern tier.

By 1906 (below), mining had been found to be advantageous. The John Bos Sand Company had purchased land near Shedd's, which by then had become the Knickerbocker Company. The Rushmores were having Krug Sand Company mine their land and the Nicholsons were mining their own land (apparently owned jointly with P.W. Wilborg, a brother-in-law).

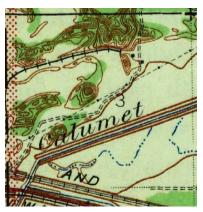


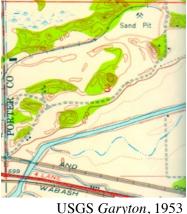
By 1921, the Real Estate Improvement Company was mining the north half of Section 3. The Rushmores had stopped mining, but the Nicholsons were expanding their Crisman Company. Bos, American Sand, and Lake Shore Sand companies had all Crisman-area purchased land.

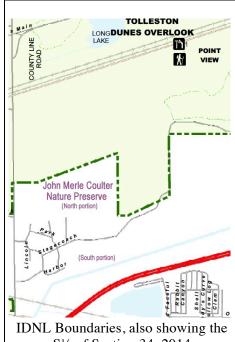


## Tolleston Dunes south of Rt. 12 and just east of County Line Road (Section 3)

Sand mining in the northern half of Section 3 began early in the 20th century. The 1940 map shows the high dunes at the north-center edge of the section. In 1950, mining was being done by the Bos Sand Company and was being serviced by a mile-long rail spur from the B&O Railroad (on both maps). That year the company filled and sent off to foundries an average of ten railroad cars of sand per day.<sup>22</sup>







USGS Porter 1940

S½ of Section 34: 2014

Sand mining in the SW¼ of Section 3 began in 1905 on land owned by Mary C. Rushmore who contracted with Krug Sand Company and American Sand and Gravel Company to take sand from her land down to a level of four feet above the bed of the Calumet marsh.<sup>23</sup> The mining, however, was stopped in 1916 before the job was finished. By that time American Sand and Gravel had conveyed to Krug the entire sand rights on that tract. Quite interested in sand in this area, American purchased a tract immediately east of the Rushmore tract.

Much of this mined area is now part of the National Lakeshore. The Shirley Heinze Land Trust owns and maintains several sections now called the John Merle Coulter Preserve.



The Bos Sand Company Pit. Foreground is a spoil ridge. To the right is the dune (of the high Tolleston Shoreline) being mined. They are separated by a line [Bieber and Smith, 1952, p. 29] of gondola cars.



Shirley Heinze Land Trust's John Merle Coulter Nature Preserve. The old railroad spur now serves as an east-west path through the

<sup>&</sup>lt;sup>22</sup> Bieber field notes, 1950.

<sup>&</sup>lt;sup>23</sup> Valparaiso Porter County Vidette, 1916, p. 3.

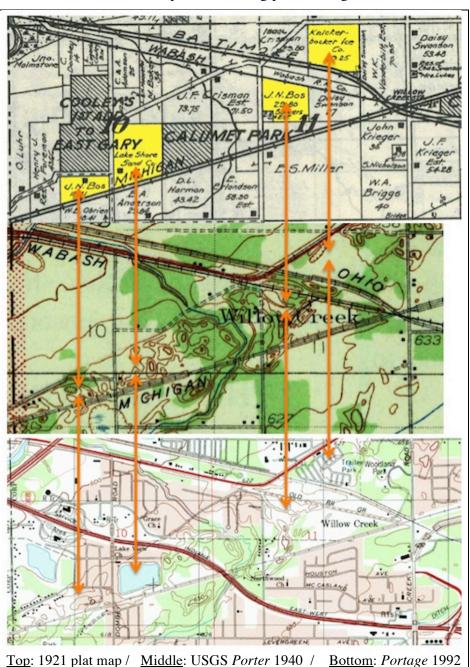
## **Crisman-West (Sections 10 and 11)**

The Crisman area is south of the National Lakeshore, but mining played a big part in its development. In 1921 three sand-mining companies owned four small parcels of primarily Calumet Shoreline sand. All four locations were conveniently located along pre-existing railroad lines.

Knickerbocker got involved with this area before 1895 when company president E. A. Shedd purchased land containing both Calumet and Glenwood sands north of the B&O tracks. That land was "mined out" by 1950.<sup>24</sup> Excavated below Melton Road (Route 20), it is today a trailer park.

J. N. Bos purchased its land in Section 11 adjacent to the Wabash tracks prior to 1906. It removed the dune that was where Carnation Avenue is today.

Both the Bos and Lake Shore Sand Companies purchased their acreage in Section 10 north of the Michigan Central line by 1921 containing only Calumet-aged sand. Lake Shore's property (east of Dombey Road) was later excavated deeper to make a borow pit for the Indiana Toll Road. Now called Dombey Lake, it contains water year round.



Bos small parcel was west of Dombey Road and south of Marquette Road.

<sup>&</sup>lt;sup>24</sup> Bieber and Smith, 1952.

#### Crisman-East (E½ Sections 1 and 12, W½ Sections 6 and 7)

The Crisman area of Portage, south of the Little Calumet River, is the site of both the ancient Calumet Beach ridge and the older Glenwood sand spit.

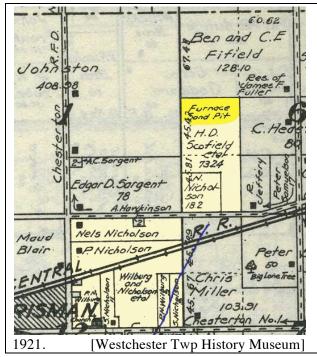
Unlike many other dune sands, the clay content in this Glenwood-aged sand<sup>25</sup> had a rare chemical makeup that allowed it to withstand heat up to 3200°F making it useful as a lining material for runners used to direct the flow of molten steel from area blast furnaces. (See photograph in Chapter 2.)

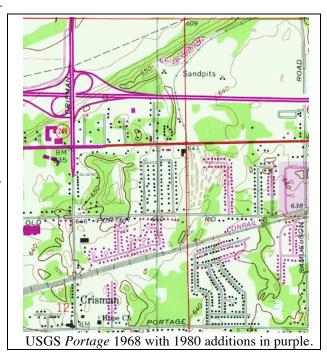
Around the turn of the last century, three Nicholson brothers, Sam, Nels, and Peter, all owners of farms in Section 12 east of Crisman, started mining the sand on their land when representatives from Chicago's U.S. Steel plant offered to purchase it.

By 1914, <sup>26</sup> the Nicholsons had competition as H. D. Scofield, whose farm also had this specialized sand started his own sand mining. The *furnace sand pit*, seen on this1921 plat map, was his. Soon the two families joined forces and in the 1920s created the Crisman Sand Company, with much of the excavated sand going to the steel mills in East Chicago and Gary.<sup>27</sup>

At first they could excavate as deep as they wanted, but for safety reasons local government set limits to depth of the pits.<sup>28</sup> U.S. Highway 20 was built through this area in 1929. The Crisman Sand Company at times worked both sides of the highway.

Two sand mines were active northeast of Crisman when this 1968 map was published. They were serviced by a mile-long spur from the Michigan (NY) Central Railroad. Interstate 80/94 was not there in the '60s. Its construction in the 1970s cut the sand mining area in half.



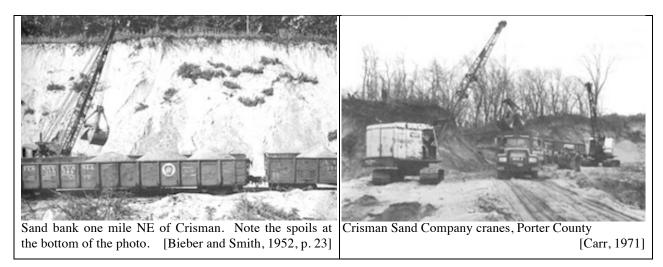


<sup>&</sup>lt;sup>25</sup> Misidentified by earlier geologists as Calumet Beach sand

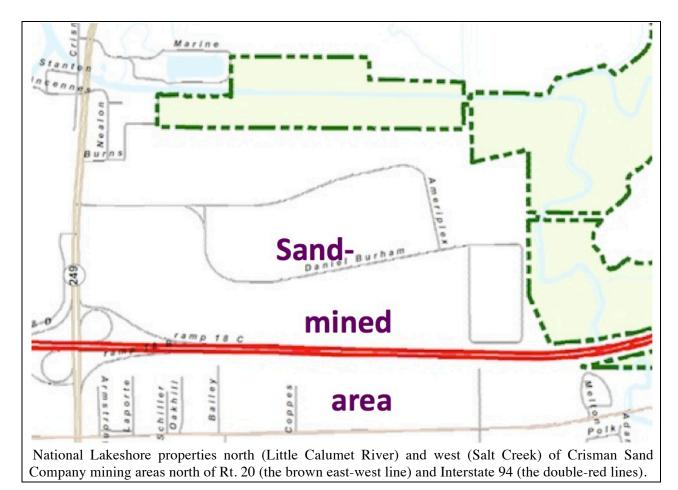
<sup>&</sup>lt;sup>26</sup> Bieber field notes, 1950, p. 7

<sup>&</sup>lt;sup>27</sup> Smith and Patton, 1952, p. 3, Magurean and Nicholson, 2014

<sup>&</sup>lt;sup>28</sup> Coambs, 1986.

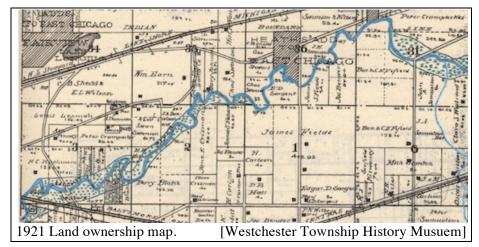


As of 2015, the company is still in business. The company moved its headquarters to Valparaiso in the 1990s and the is now excavating land that it has purchased from Anderson Orchards south of U. S. Highway 6 in Jackson Township.



#### Little Calumet River—West Corridor

Although the Little Calumet River corridor did not have desirable sand for mining, its surface features have nevertheless been significantly altered. The river was prone to flooding, which made the floodplain less useful for farming and/or development. As wetlands then were seen practically as wastelands, in the mid-1920s Burns Ditch was dug from the river north through the dunes to Lake Michigan. At the same time the river was channeled and straightened westward from the mouth of Salt Creek (at the far right on the maps below.





#### Gravel

In 1906, W. S. Blatchley, the Indiana state geologist, reported that little, if any, gravel "suitable for road purposes has been found in the county" though he admitted that some deposits may yet be found in the southern part of the county.<sup>29</sup> A few small deposits had been found south and west of Valparaiso. Some of it was used to cover streets in Valparaiso. Another small deposit was found on the Valparaiso—LaPorte road. But nothing substantial in dune country.

Whereas in 1906 there were 1000 miles of roads in the county, only 91 of those miles were then covered with gravel. An additional 19 miles of roads were covered with crushed stone. The gravel and stone used on the 110 miles of improved roads at that time in the county had all been imported from Illinois.<sup>30</sup>

<sup>&</sup>lt;sup>29</sup> Blatchley, 1906, p. 181-82.

<sup>&</sup>lt;sup>30</sup> Blatchley, 1906, p. 180-81.